

Claims

- [c1] 1. An electric machine with cooling rings, comprising:
a housing;
a stator core disposed within the housing and having at least one end-turn extending beyond an end of the stator core, the end-turn being potted with a potting material;
a rotor rotatably positioned within the stator core;
a non-laminated thermal conductor ring having a thermal conductivity that is greater than a thermal conductivity of the potting material disposed between the potted stator core end-turn and the housing for conducting heat from the stator core end-turn to the housing.
- [c2] 2. The electric machine of claim 1, wherein the housing has a coolant fluid circulated therein.
- [c3] 3. The electric machine of claim 1, wherein the thermal conductor ring is a metallic thermal conductor ring disposed between the potted stator core end-turn and the housing.
- [c4] 4. The electric machine of claim 3, wherein the metallic thermal conductor ring is an aluminum ring disposed between the potted stator core end-turn and the housing.
- [c5] 5. The electric machine of claim 3, wherein the metallic thermal conductor ring is an aluminum alloy ring disposed between the potted stator core end-turn and the housing.
- [c6] 6. The electric machine of claim 1, wherein the thermal conductor ring is a non-metallic thermal conductor ring disposed between the potted stator core end-turn and the housing.
- [c7] 7. The electric machine of claim 1, wherein the thermal conductor ring further comprises an outer face thereof disposed against an inner surface of the housing.
- [c8] 8. The electric machine of claim 7, wherein the outer face of the thermal

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conductor ring is pressed fit against the inner surface of the housing.

- [c9] 9.The electric machine of claim 8 , wherein the housing is shrink fitted against the outer face of the thermal conductor ring.
- [c10] 10.The electric machine of claim 1 , wherein the thermal conductivity of the thermal conductor ring is at least 90 BTU/hr ft degree F.
- [c11] 11.The electric machine of claim 1 , wherein the thermal conductivity of the thermal conductor ring is at least 300 times greater than the thermal conductivity of the potting material.
- [c12] 12.The electric machine of claim 1 , further comprising a space defined between the potted stator end-turn and the thermal conductor that is filled with the potting material.
- [c13] 13.The electric machine of claim 1 , wherein the potting material is a flexible potting material.
- [c14] 14.The electric machine of claim 13 , wherein the flexible potting material is an elastomeric potting material.
- [c15] 15.The electric machine of claim 13 , wherein the flexible potting material is a viscoelastic potting material.

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